

1,272,701.

Patented July 16, 1918.

Fig. 1.

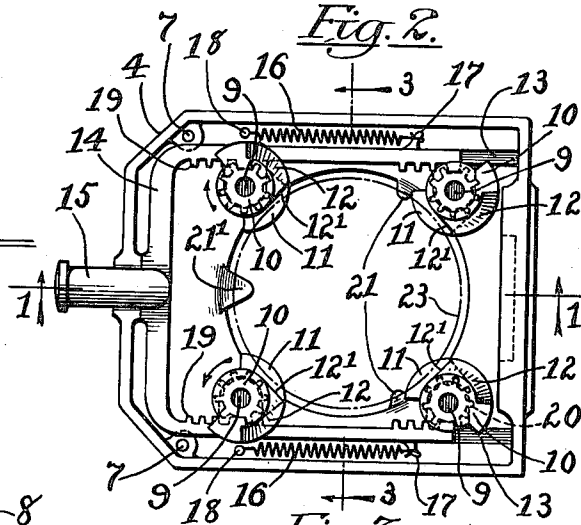
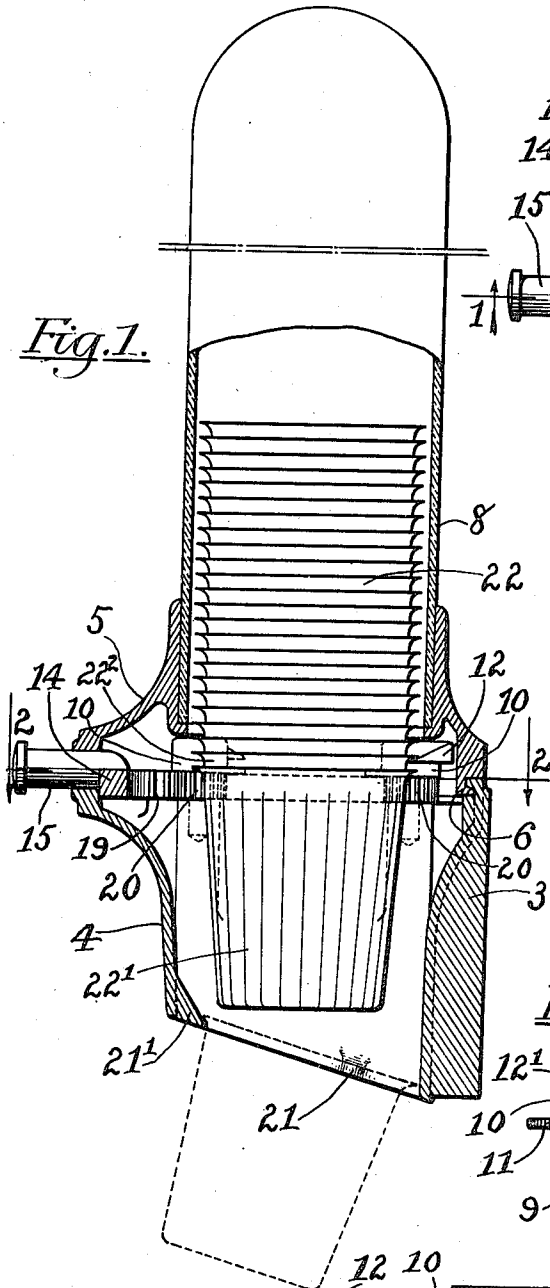


Fig. 3.

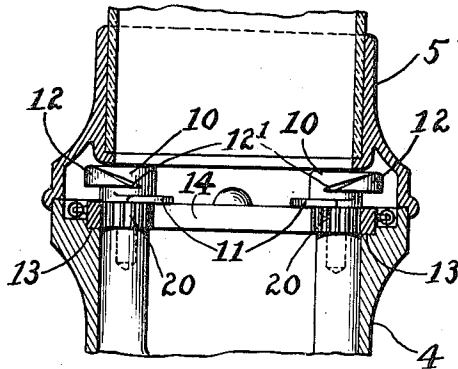
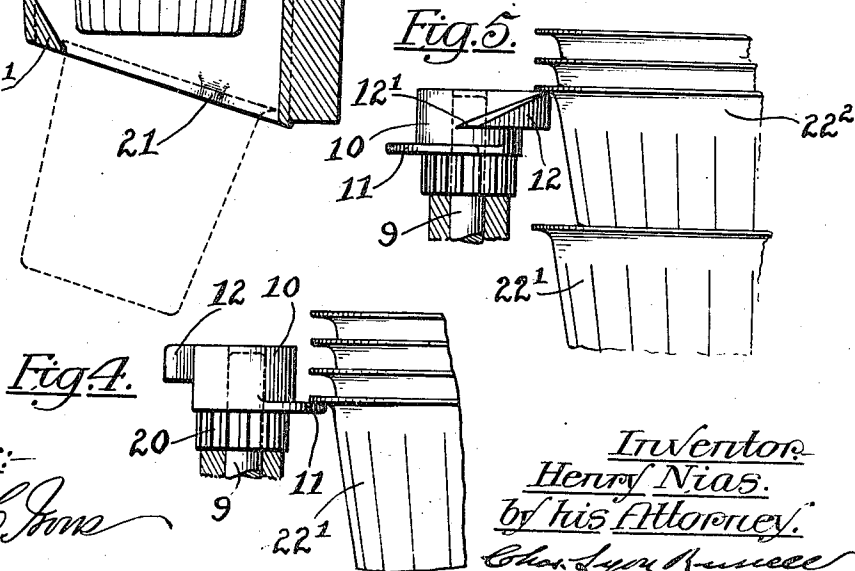


Fig. 4.



Witness:

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Inventor:
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by his Attorney.

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UNITED STATES PATENT OFFICE.

HENRY NIAS, OF BROOKLYN, NEW YORK, ASSIGNOR TO PUBLIC SERVICE CUP COMPANY,
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CUP-DISPENSER.

1,272,701.

Specification of Letters Patent.

Patented July 16, 1918.

Application filed February 26, 1916. Serial No. 80,571.

To all whom it may concern:

Be it known that I, HENRY NIAS, a citizen of the United States, and a resident of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Cup-Dispensers, of which the following is a specification.

This invention relates to dispensing devices and particularly to devices of that class adapted for dispensing paper drinking cups.

The object of my improvements is to provide a device of the class specified, simple in construction and accurate and reliable in operation.

My improvements are illustrated in their preferred form in the drawing accompanying this specification, wherein:

Figure 1 is a sectional elevation at about the plane indicated by line 1, 1 of Fig. 2. Fig. 2 is a plan view of what is shown in Fig. 1 with the separable portions above the plane indicated by line 2, 2 of that figure removed. Fig. 3 is a sectional elevation taken at about the plane indicated by line 3, 3 of Fig. 2. Figs. 4 and 5 are fragmentary views showing steps in the operation of my improved device. Figs. 1, 2 and 3 are drawn to one scale, and Figs. 4 and 5 to a larger scale.

The container illustrated for the operative parts of my improved device and for the cups is shown in the form of a casing 3 having a lower portion 4 and an upper portion 5. The two parts are shown separable at line 2, 2 Fig. 1 and held together by locking means 6 at the rear and by suitable screws in holes 7 threaded into the upper portion, at the front. As part of said container, a glass tube 8, for guiding a stack of nested flanged cups, is shown mounted on the upper portion 5 of the casing.

Loosely mounted on vertical pins 9, equally spaced around the common periphery of the cups and fixed in the lower portion 4 of the casing, are a plurality of oscillatory escapements 10, preferably four in number. Said escapements are each provided with a primary support 11, movable into and out of supporting engagement with the lowermost cup of the stack, and a secondary support 12, movable into and out of supporting engagement with the next to the lowest cup of the stack. These two cup

supporting members are in different planes, one above the other, with the forward end of support 12 slightly overlapping the adjacent end of support 11. The under surface of secondary support 12 is in a horizontal plane parallel to that of the upper surface of primary support 11, with a sufficient space between the two surfaces to allow a cup flange to pass freely therethrough. The upper surface of said support 12 converges toward its under surface, forming a thin edge at the forward end of said support.

Slidably mounted in guide ways 13 is a U shaped slide 14 having a centrally located push rod 15 extending through the front portion of the casing. Said slide is held in its normal position, Fig. 2, by tension springs 16, each having one end fastened to one of lugs 17 of the slide and the other end fastened to one of pins 18, fixed in lower portion 4 of the casing. The parallel portions of U shaped slide 14 extend by and outside respectively of escapements 10, and have their inner faces provided with gear teeth 19 in operative engagement with gear teeth 20 on the lower portions of said escapements, in such manner that when the two escapements on one side are rotated in one direction, the two escapements on the other side are rotated in the opposite direction.

The opening at the bottom of lower portion 4 of the casing is of circular form having a diameter larger than that of a cup flange. Located within said opening are a plurality of rigid cup retaining lugs or projections 21, 21¹, reaching inwardly into the path of the flange of the cup as it falls after being released by primary supports 11 of the escapements. Said lugs 21, 21¹ are preferably three in number and substantially equally spaced circumferentially. The diametrical space between the extremities of said lugs is slightly less than that occupied by the cup flange, so that a cup in falling will be arrested and retained thereby. Said lugs 21, 21¹ are disposed in a plane inclined at such angle that the arrested cup will be held with its lower end projecting forwardly toward the operator in a position to be readily grasped by the hand. Also the front lug 21¹ is longer than the other two lugs and is provided with a cam like face.

The operation of my improved device is

as follows: The several operative parts being in their normal positions, as shown in Figs. 1, 2 and 3, a stack of nested flanged cups 22 is placed within guide tube 8 of the container with the flange of the lowermost cup 22¹ resting upon the primary supports 11 of escapements 10, Figs. 1 and 4. At this time the forward ends 12¹ of secondary supports 12 of the escapements are just without the common periphery of the cups, represented by circular line 23 of Fig. 2. The operator now pressing against the outwardly extending end of rod 15 of slide 14 will cause said slide to move rearwardly on guide ways 13. Escapements 10 in geared connection with said slide will at the same time rotate, moving the thin edges 12¹ of the forward ends of secondary supports 12 within said circular line 23 and just beneath the flange of the next to the lowermost cup 22². Said secondary supports 12 continuing their forward movement bring the inclined upper surfaces of said supports into supporting engagement with the flange of cup 22², slightly lifting the stack and relieving the lowermost cup 22¹ of the weight thereof. Immediately following, escapements 10 still continuing their forward movement, primary supports 11 move out of supporting engagement with the flange of lowermost cup 22¹, when that cup is released.

Thereafter, secondary supports 12 reaching the end of their forward movement, cup 22² will have ascended to the topmost portion of said secondary supports, Fig. 5, and slide 14 will be at the end of its rearward stroke. Push rod 15 now being released by the operator, slide 14 and escapements 10 will return to their normal positions, through the action of tension springs 16, allowing the flange of cup 22², now the lowermost cup of the stack, to descend the inclined upper surfaces of secondary supports 12 until the latter are withdrawn from supporting engagement therewith, when said cup will drop to supported engagement with the upper surfaces of primary supports 11 and the device be in readiness to dispense another cup.

Normally the lowermost cup falls from the escapements immediately upon the withdrawal of primary supports 11 from supporting engagement therewith. Should the lowermost cup adhere to the next to the lowermost cup, as the latter is lifted by the inclined upper surfaces of secondary supports 12, the under surfaces of said supports are adapted to contact with the upper surface of the flange of the lowermost cup and prevent it rising above the horizontal plane of said under surfaces, when the continued lifting action of the inclined upper surfaces of said supports 12 slightly withdraws the stack from the lowermost cup, after which it falls.

The discharged cup in falling first contacts with lug 21¹, which throws the cup flange rearwardly and the lower end of the cup forwardly, the cup coming to rest in the dotted position of Fig. 1, with the rear portion of its flange in full overlapping engagement with lugs 21, 21 and the front portion in slight overlapping engagement with lug 21¹. The downward pull of the hand of the operator in grasping the cup causes the front portion of the cup flange to ride down the cam like face of lug 21¹, distorting the circular form of the cup flange sufficiently to allow of its springing over the extremity of said lug, when the cup comes freely away.

The form of the device shown in the drawings is an illustrative example of my invention and of course it is apparent that changes may be made within the scope of the claims without departing from the spirit of my invention.

I claim:

1. In a cup dispenser, a casing, means mounted on said casing for guiding a stack of nested flanged cups, a plurality of oscillatory escapements loosely mounted on vertical pins fixed in said casing and equally spaced around the common periphery of the cups, each escapement being provided with primary means movable into and out of supporting engagement with the lowermost cup of the stack and secondary means movable into and out of supporting engagement with the next to the lowermost cup of the stack, the primary means adapted to withdraw from engagement with the lowermost cup after the secondary means engages the next to the lowermost cup, gear teeth on said escapements, a U shaped slide member slidably mounted in said casing and having teeth on the inner faces of its parallel portions in operative engagement with the teeth of said escapements, and means for directly operating said slide by hand.

2. In a cup dispenser, a casing, means mounted on said casing for guiding a stack of nested flanged cups, four oscillatory escapements loosely mounted on vertical pins fixed in said casing and equally spaced around the common periphery of the cups, each escapement being provided with primary means movable into and out of supporting engagement with the lowermost cup of the stack and secondary means movable into and out of supporting engagement with the next to the lowermost cup of the stack, the primary means adapted to withdraw from engagement with the lowermost cup after the secondary means engages the next to the lowermost cup, gear teeth on said escapements, a U shaped slide member slidably mounted in said casing and having teeth on the inner faces of its parallel portions in operative engagement with the teeth of said

escapements for moving two of the escape-
ments in one direction and at the same time
moving the other two of the escapements in
the opposite direction, and means for di-
rectly operating said slide by hand.

3. In a cup dispenser, a casing, means
mounted on said casing for guiding a stack
of nested flanged cups, four oscillatory es-
capements loosely mounted on vertical pins
fixed in said casing and equally spaced
around the common periphery of the cups,
each escapement being provided with pri-
mary means movable into and out of sup-
porting engagement with the lowermost cup
of the stack and secondary means movable
into and out of supporting engagement with
the next to the lowermost cup of the stack,
the primary means adapted to withdraw
from engagement with the lowermost cup
after the secondary means engages the next
to the lowermost cup, gear teeth on said es-
capements, a U shaped slide member slid-
ably mounted in said casing and having
teeth on the inner faces of its parallel por-
tions in operative engagement with the teeth
of said escapements for moving two of the

escapements in one direction and at the same
time moving the other two of the escape-
ments in the opposite direction, said slide
being provided with a centrally located push
rod extending without the casing for oper-
ating the slide.

4. In a cup dispenser, means for releasing
one cup at a time from a stack of nested
flanged cups, and means for supporting the
released cup in a position convenient to the
hand comprising a pair of rigid lugs for
supporting the cup flange at the rear and
a rigid cam-faced lug for releasably sup-
porting the cup flange at the front, space
being provided between said rear lugs and
said front lug for the free passage of the
adjacent portions of the cup flange.

Signed at New York, borough of Brook-
lyn, in the county of Kings and State of
New York, this 25th day of February, 1916,
before two subscribing witnesses.

HENRY NIAS.

Witnesses:

WILLIAM S. BELL,
CHAS. W. LA RUE.